In this issue

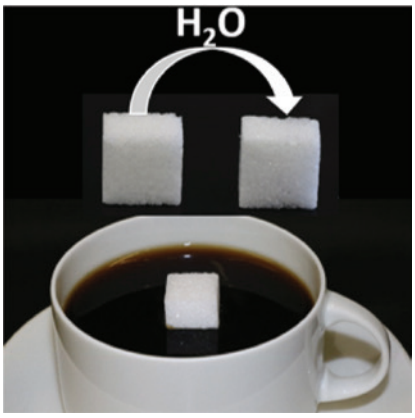
Tobias Moss, Ilka E. Paulus, Daniel Raps, Volker Altstädt and Andreas Greiner

Ultralight sponges of poly(*para*-xylylene) by template-assisted chemical vapour deposition

DOI 10.1515/epoly-2016-0329
e-Polymers 2017; 17(4): 255–261

Full length article: Ultralight porous cubic PPX foam swims on coffee. The PPX cube was prepared by coating of a sugar cube by PPX and subsequent removal of the sugar.

Keywords: chemical vapour deposition; poly(*para*-xylylene); template; ultralight foams.



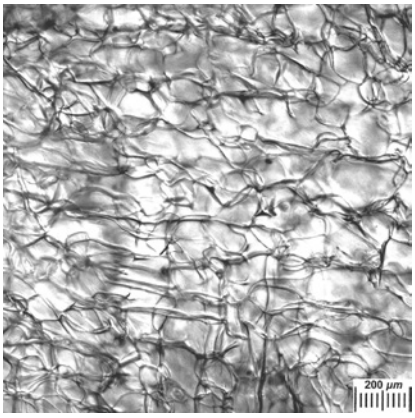
Ilya A. Rodionov, Natalia V. Grinberg, Tatiana V. Burova, Valery Ya. Grinberg, Tatyana I. Shabatina and Vladimir I. Lozinsky

Cryostructuring of polymer systems. 44. Freeze-dried and then chemically cross-linked wide porous cryostructurates based on serum albumin

DOI 10.1515/epoly-2016-0317
e-Polymers 2017; 17(4): 263–274

Full length article: Spongy cryostructurates based on bovine serum albumin (BSA) have been prepared *via* freezing the aqueous solutions of the protein followed by freeze-drying and subsequent cross-linking BSA macromolecules each together within the macropore walls using N-(3-dimethylaminopropyl)-N′-ethylcarbodiimide hydrochloride (EDC) dissolved in ethanol.

Keywords: cross-linking; cryostructuring; freeze-drying; macroporosity; serum albumin.



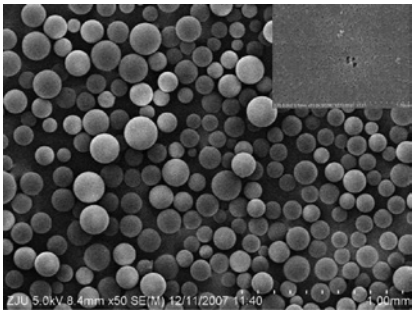
Kai Liang, Gen Li, Meixuan Peng and Qingquan Liu

Macroporous polymer beads derived from a novel coporogen of polyethylene/dichlorobenzene

DOI 10.1515/epoly-2016-0301
e-Polymers 2017; 17(4): 275–282

Full length article: Macroporous poly(divinylbenzene) beads were prepared by traditional suspension polymerization in the presence of dichlorobenzene and polyethylene as coporogen. A combination between high surface area and excellent pore connectivity could be achieved.

Keywords: adsorption; coporogen; electron microscopy; polymers; porous materials.



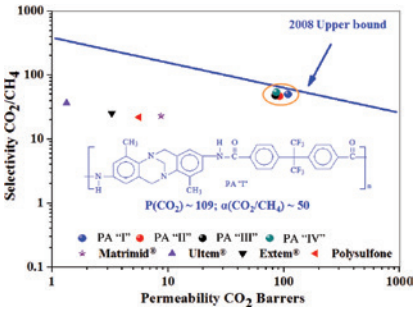
Soumendu Bisoi, Arun Kumar Mandal, Asheesh Singh and Susanta Banerjee

Gas separation properties of Troeger's base-bridged polyamides

DOI 10.1515/epoly-2016-0291
e-Polymers 2017; 17(4): 283–293

Full length article: A series of new Troeger base-bridged (TB) polyamides were prepared. The polymers were well characterized and their gas transport properties were investigated. To the best of our knowledge, there is no prior study on gas transport properties on Troeger base-bridged polyamides. In general, TB unit in the PAs backbone enhances the gas permeability and particular, increase the permselectivity of CO_2/CH_4 and O_2/N_2 gas pairs.

Keywords: dielectric constant; gas transport properties; polymer membranes; solubilityselectivity; Troeger's base-bridged polyamides.



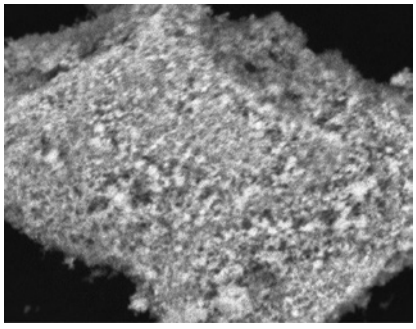
Oluwaseyi D. Saliu, Gabriel A. Olatunji, Azeh Yakubu, Mariam T. Arowona and Aminat A. Mohammed

Catalytic crosslinking of a regenerated hydrophobic benzylated cellulose and nano TiO_2 composite for enhanced oil absorbency

DOI 10.1515/epoly-2016-0289
e-Polymers 2017; 17(4): 295–302

Full length article: Hydrophobic cellulosic composites with the nano form of metal oxides possess good absorptive and adsorptive potentials. Native cellulose was regenerated, benzylated, crosslinked and blended with TiO_2 nanoparticles to absorb toluene, xylene, chloroform, kerosene and petrol. The composite was characterized.

Keywords: absorbency; cellulose; hydrophobic; regenerated.



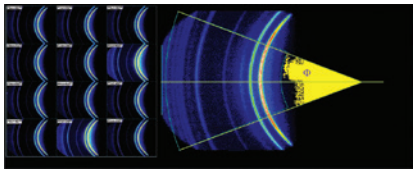
Mircea Chipara, Brian Jones, Dorina M. Chipara, Jianhua Li, Karen Lozano, Shah Valloppilly and David Sellmyer

On orientation memory in high density polyethylene – carbon nanofibers composites

DOI 10.1515/epoly-2016-0286
e-Polymers 2017; 17(4): 303–310

Full length article: An orientation memory effect in high density polyethylene (HDPE) filled with vapor grown carbon nanofibers (VGCNF) is reported. Two-dimensional X-ray (2DXR) confirmed the reorientation of HDPE crystallites upon the uniaxial stretching of HDPE and HDPE filled by VGCNFs.

Keywords: memory; polyethylene; two-dimensional X-ray spectra; vapor grown carbon nanofiber.



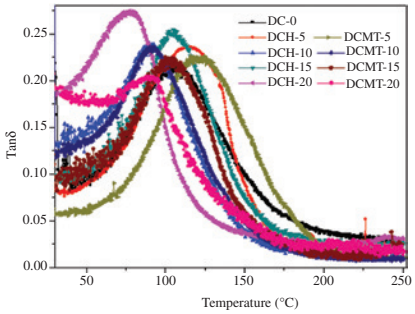
Anoj Meena, Harlal Singh Mali, Amar Patnaik and Shiv Ranjan Kumar

Comparative investigation of physical, mechanical and thermomechanical characterization of dental composite filled with nanohydroxyapatite and mineral trioxide aggregate

DOI 10.1515/epoly-2016-0319
e-Polymers 2017; 17(4): 311–319

Full length article: This study presents comparative investigation of adding nanohydroxyapatite (HA) (5–20 wt.%) and mineral trioxide aggregate (MTA) (5–20 wt.%) on the physical, mechanical and thermomechanical characterization of dental composite. The performances of both experimental composites were assessed through various physical, mechanical and thermomechanical tests such as void content test, microhardness test, compressive strength test, Dynamic mechanical analysis and thermogravimetric analysis.

Keywords: dental composites; mechanical properties; mineral trioxide aggregate; nanohydroxyapatite; thermomechanical properties.



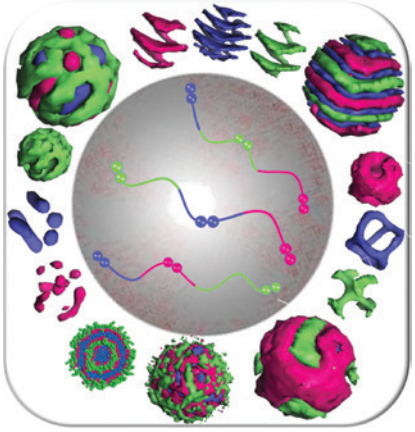
Xiaoqiang Liu, Chun Zhou, Honggang Xia, Yang Zhou and Weidong Jiang

Dissipative particle dynamics simulation on the self-assembly of linear ABC triblock copolymers under rigid spherical confinements

DOI 10.1515/epoly-2016-0306
e-Polymers 2017; 17(4): 321–331

Full length article: Dissipative particle dynamics simulations were used to explore the self-assemble behaviors of linear ABC triblock copolymers in rigid spherical confinements. First several unusual morphologies, such as multilayer onion, coupled helix, and stacked lamella, were distinguished from the total 210 simulations. Second the influences of three important parameters (block sequence, wall selectivity, and spherical radius) on the morphologies were discussed in detail.

Keywords: computer simulation; DPD; self-assembly; spherical confinement; triblock copolymer.



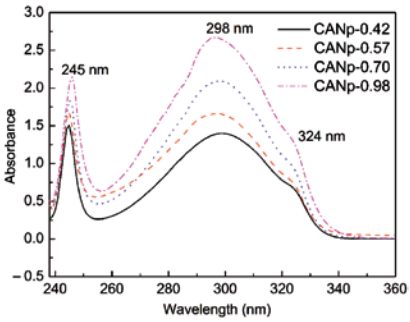
Jun Song, Mei Liu, Zhanping Yang, Songwei Xu, Bowen Cheng and Pengfei Fei

Synthesis and characterization of cellulose acetate naphthoate with good ultraviolet and chemical resistance

DOI 10.1515/epoly-2016-0293
e-Polymers 2017; 17(4): 333–340

Full length article: Commercial cellulose diacetate (CDA) with a degree of substitution (DS) of 2.45 was partly deacetylated to cellulose acetate (CA) with different DSs by acid-catalyzed hydrolysis and then reacted with 1-naphthoyl chloride (NpCl) to synthesize cellulose acetate naphthoate (CANp).

Keywords: cellulose acetate; chemical resistance; naphthalene moiety; thermal stability; ultraviolet resistance.



Elif Kaynak, Mustafa Erdem Ureyen and Ali Savaş Koparal

Thermal characterization and flammability of polypropylene containing sepiolite-APP combinations

DOI 10.1515/epoly-2016-0275
e-Polymers 2017; 17(4): 341–348

Full length article: The potential of sepiolite to reduce the total amount of flame retardants used in polypropylene has been investigated by LOI tests, cone calorimetry and simultaneous thermal analysis.

Keywords: cone calorimetry; flame retardant; polypropylene; sepiolite; simultaneous thermal analysis.